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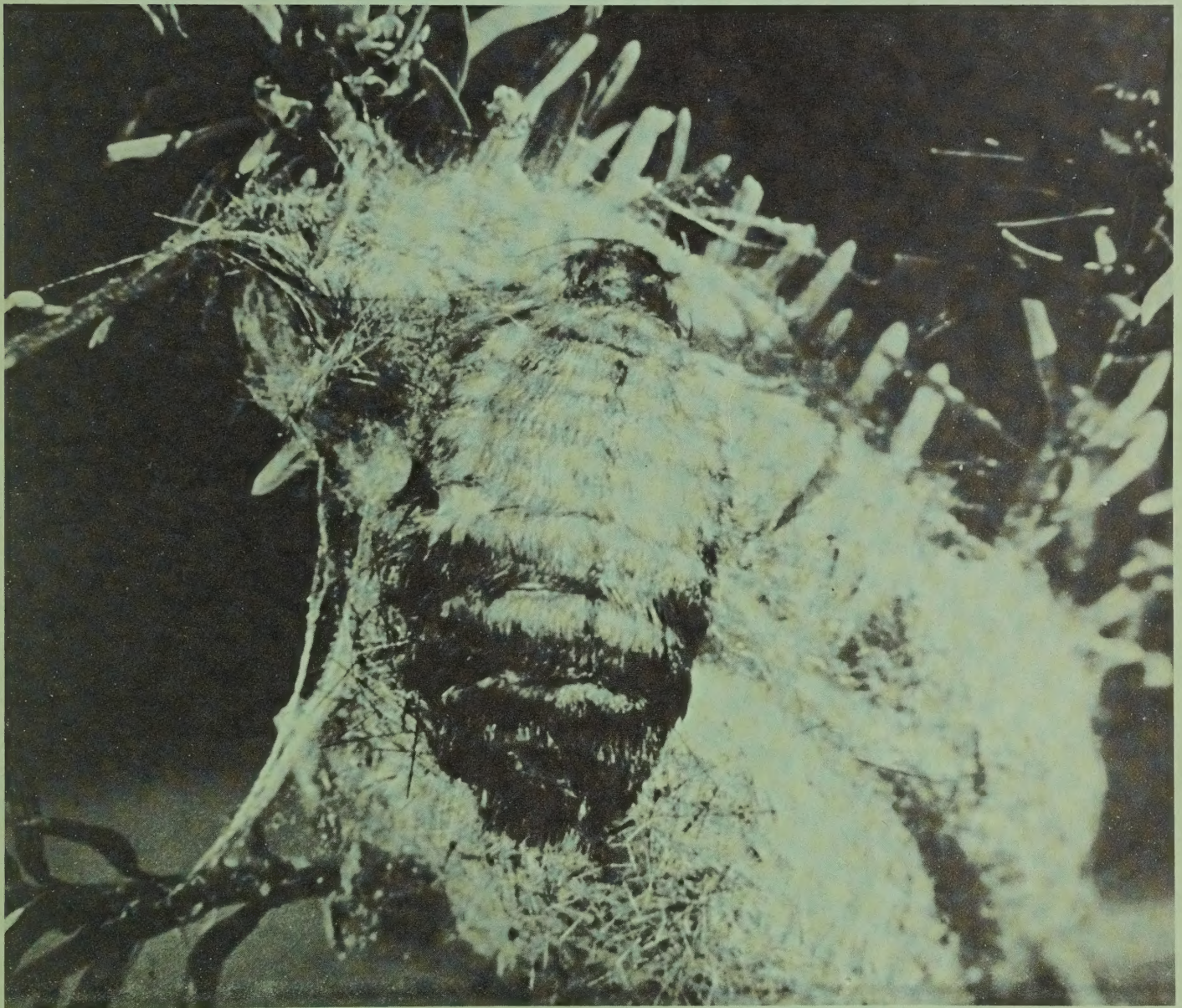
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FOREST INSECT CONDITIONS

IN THE NORTHERN REGION

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1963



U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE

DIVISION OF STATE AND PRIVATE FORESTRY

MISSOULA, MONTANA

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FOREST INSECT CONDITIONS
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By
Scott Tunnock, Entomologist
Division of State and Private Forestry

COVER PHOTO: Female Douglas-fir tussock moth on cocoon.

U.S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE
Division of State and Private Forestry
Region 1
Missoula, Montana

FOREST INSECT CONDITIONS
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Division of State and Private Forestry

SUMMARY OF CONDITIONS

Severe epidemics of the Douglas-fir beetle developed in the Flathead National Forest, Montana, and Nezperce National Forest, Idaho. Low level epidemics are active in the Kootenai, Gallatin, and Lolo National Forests, Montana, and in the Clearwater National Forest, Idaho. Damage by the mountain pine beetle increased. In Idaho, six infestation centers within white pine stands were detected in the Kaniksu National Forest, parts of 141,000 acres on the Clearwater contained chronic infestations, the St. Joe had an increase in its eastern drainages, and the Coeur d'Alene suffered continued losses in chronic areas. There is evidence of mountain pine beetle infestations in several areas in the Flathead National Forest, Montana. The Kootenai National Forest, Montana, contains about 5,200 acres of mountain pine beetle infested lodgepole pine. Fir engraver beetle infestations in true firs are heavy over the Nezperce, Clearwater, and St. Joe National Forests, Idaho, and Flathead National Forest, Montana. Oregon pine engraver outbreaks are at a very low level. Some damage was detected between Riggins and Grangeville, Idaho in ponderosa pine stands. The spruce budworm epidemic shows no sign of abatement, but defoliation is not expected to increase in 1964. The moth is spreading westward into Idaho from the Bitterroot and northward into Montana. There has been some decrease in the Douglas-fir tussock moth population in Idaho, but a 1,400-acre Douglas-fir stand was heavily defoliated for the first time near Kalispell, Montana. The larch casebearer epidemic continued to spread through the larch type. It is as far north as Bonners Ferry, Idaho; as far south as Elk River, Idaho; and as far east as Plains, Montana. The pine needle-sheath miner heavily defoliated lodgepole pine within 168,000 acres in western Montana, and 4,000 acres north of Bozeman. Larch sawfly damage is heavy. The St. Joe National Forest contained 34 different infested stands ranging in size from 10 to 13,000 acres, and the Clearwater National Forest, Idaho had six. A larch budmoth infestation occurred in Montana, the first since 1961. Douglas-fir needle midge populations are heavy in most stands. Damage by the western pine tip moth was visible over 65,000 acres of ponderosa pine in eastern Montana. About 350 acres were infested for the first time by the false hemlock looper near Moiese, Montana. The forest tent caterpillar caused heavy defoliation to deciduous trees and shrubs over 116,000 acres in northern Idaho.

BARK BEETLES

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae Hopk.). Surveys during 1962 indicated that damage by this beetle would increase in 1963 over the Northern Region. Severe epidemics developed in the Flathead National Forest, Montana within the northern parts of the Swan River and South Fork Flathead River drainages. About 46,000 acres were affected. The beetle population is maintaining a low epidemic level in the Kootenai National Forest, Montana; around the Thompson Lakes; within the Fisher River and Wolf Creek drainages; and within almost all drainages northwest of Libby and north of Troy, Montana. Damage in the Gallatin National Forest, Montana consists of small groups scattered throughout most of the Douglas-fir type. The heaviest concentration of attacked trees is on the Squaw Creek Ranger District. Damage is light in the Lolo National Forest, Montana. About 1,200 acres are infested in the Cottonwood drainage on the Seeley Lake Ranger District.

Another severe epidemic is active in the Nezperce National Forest, Idaho. It extends from Riggins to Grangeville and includes about 12,000 acres in drainages on the east side of the Salmon River. Light infestations are spread through about 4,500 acres in the Newsome Creek drainage near Elk City, Idaho. Small groups of infested trees were detected in drainages along the Selway River from the Fenn Ranger Station to Selway Falls. Infestations are still active on the Powell Ranger District, Clearwater National Forest, Idaho.

MOUNTAIN PINE BEETLE (Dendroctonus (monticolae) ponderosae Hopk.). Damage by this beetle increased in the Northern Region during 1963. In the Kaniksu National Forest, Idaho there are six infestation centers in mature western white pine stands. The heaviest killing occurred within the headwaters of the Priest River and covered about 2,500 acres. About 5 percent of the white pine trees were attacked in 1963, and in some sections losses ranged as high as 12 percent. This infestation is expected to increase in 1964. Near the heads of Caribou and Trapper Creeks (northeast of Upper Priest Lake) about 1,500 mature white pine are infested. Nine percent of the white pine trees in a 30-acre stand west of Upper Priest Lake were attacked in 1963. Numerous groups of white pine containing from 5 to 50 trees were detected in the Lion and Bull Creek drainages east of the northern tip of Priest Lake. Areas of chronic infestations in the Clearwater National Forest, Idaho, within mature western white pine stands, cover about 141,000 acres. Two to three percent of these trees are killed annually by the beetle. The most heavily infested area in 1963 was along the North Fork Clearwater River near Cedars. Aerial surveys indicated that low-level mountain pine beetle infestations in white pine are probably increasing in drainages of the St. Joe River, Idaho from Avery to Red Ives. The Coeur d'Alene National Forest, Idaho also contains several drainages of mature white pine that suffer from chronic attacks. Numerous groups of infested trees were observed in the Steamboat, Grizzly, Downey, Yellow Dog, and Flat Creek drainages off the Coeur d'Alene River. The Kootenai National Forest, Montana contains about 5,200 acres of lodgepole pine in the Yaak River drainage that are lightly infested. This infestation has been increasing for the last 3 years. Many groups of white pine were killed during 1962 and 1963 along the northeast and southwest sides of Hungry Horse Reservoir, and North Fork Flathead River drainage, Montana.



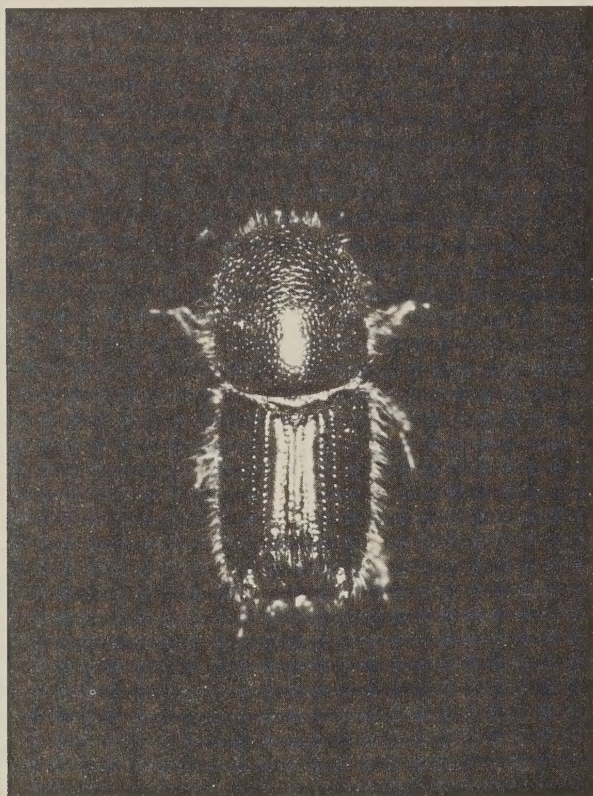
Left: Pitch tubes on the bark of a lodgepole pine caused by the entrance of mountain pine beetles.

FIR ENGRAVER (*Scolytus ventralis* Lec.). The long, dry summer of 1961 triggered epidemics of this beetle throughout the grand fir type in the Northern Region. Losses were still high in 1963 on the west half of the Nezperce National Forest, the Clearwater National Forest from the North Fork to the Middle Fork Clearwater River, and the St. Joe National Forest from St. Maries to Bovill, Idaho. Thousands of acres are infested east of Big Fork, and north of Whitefish, Montana.

DOUGLAS-FIR ENGRAVER (*Scolytus unispinosus* Lec.). A light population still remains in an 1,800-acre stand of pole-size Douglas-fir west of Ravalli, Montana. This area suffered heavy losses during 1962.

THE WESTERN BALSAM BARK BEETLE (*Dryocoetes confusus* Sw.). Alpine fir stands in southeastern Montana and Yellowstone National Park, Wyoming have been attacked for several years. Thousands of dying alpine firs were detected during aerial surveys in Yellowstone National Park, Pryor Mountains, Custer National Forest, and near the head of the Bighorn River, Montana that were probably attacked by this beetle.

OREGON PINE ENGRAVER (Ips oregonis (Eichh.)). Occasional infested areas of ponderosa pine were detected in drainages along the Salmon River from Riggins to Grangeville, Idaho. Four large groups surround Rathdrum, Idaho. In western Montana, most ponderosa pine stands contained a few small groups of 1963 attacks. Three generations completed development in ponderosa pine logs near Missoula, Montana.



Left: The adult stage of Ips oregonis.

DEFOLIATORS

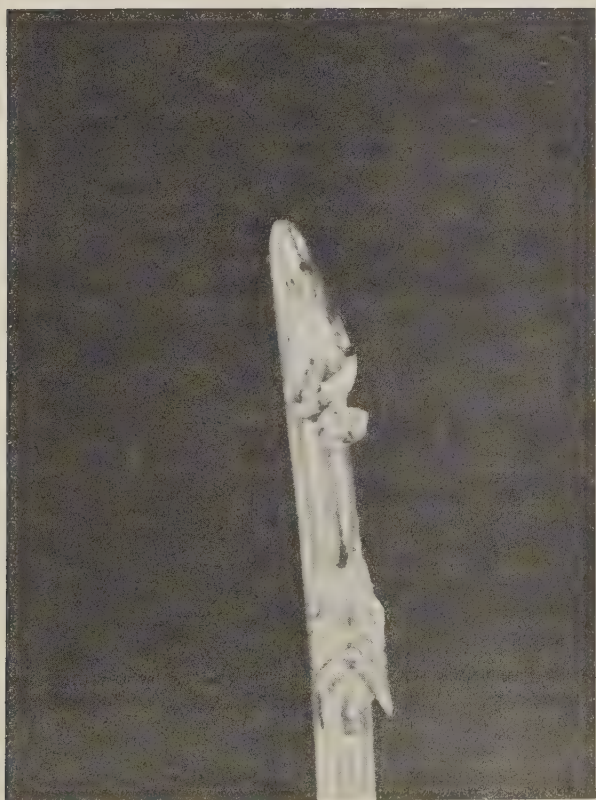
SPRUCE BUDWORM (Choristoneura fumiferana (Clem.)). Data collected from permanent plots located in areas of chronic defoliation indicated little change in the Region-wide infestation during 1963. Records for the past 5 years are summarized in the following table:

	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>
Percent defoliation	38	34	37	25	35
Egg masses per M. sq. in.	10.4	4.1	8.4	10.5	9.5
Percent egg mass parasitism	3.8	1.0	4.3	6.0	0.0
New foliage growth (inches)	0.81	0.59	0.69	0.78	0.93
New foliage destroyed (inches)	0.31	0.20	0.26	0.20	0.32
Net length of new foliage (inches)	0.50	0.39	0.43	0.58	0.61

The infestation is static. There is no indication that it will change its level. Pattern of spread is changing, however. In 1963, budworm damage extended westward from the West Fork of the Bitterroot drainage in Montana into Idaho as far as the Red River Ranger District in the Nezperce National Forest. It also appears to be moving northwest in western Montana. A separate small outbreak was detected on the Kootenai National Forest, Montana and two somewhat larger areas were discovered on the Kaniksu National Forest, Idaho which extend into Washington. These were all low-level infestations in 1963.



Left: Adult spruce budworm moths and pupal cases. Note adult emerging from pupal case in the center.



Left: Spruce budworm larvae hatching from eggs on Douglas-fir needle.

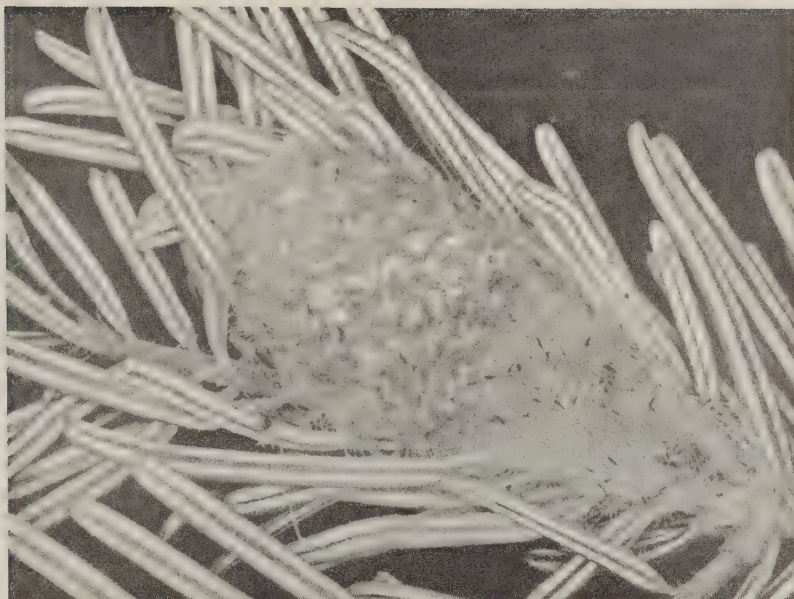


Tree mortality in a stand of Douglas-fir caused by spruce budworm feeding.

DOUGLAS-FIR TUSsock MoTH (Hemerocampa pseudotsugata McD.). Infestations have been present around private homes and farm woodlots since 1961 in northern Idaho. In 1963, two infestations were detected in northwestern Montana on forested land. The moth is attacking grand fir, Douglas-fir and spruce trees. Infestation trends for 1964 are as follows:

Idaho - Bonners Ferry area, static; Copeland, increase; Clark Fork, decrease; Algoma Lake, increase; Albeni Falls, decrease; Hayden Lake, increase; Coeur d'Alene, increase; and Mineral Mountain, increase.

Montana - Kalispell, static; and Lion Lake near Hungry Horse, decrease. Many of the infested trees in Idaho were sprayed by the State in all areas except Clark Fork and Mineral Mountain Lookout. The infested area near Kalispell covers about 1,400 acres of State and privately owned land.



Douglas-fir tussock moth egg mass on top
of a cocoon.



Typical Douglas-fir tussock moth damage to ornamental
conifers around homes.

LARCH CASEBEARER (Coleophora laricella (Hbn.)). Epidemic continues to spread through the larch type in the Northern Region. In Montana and Idaho the forefront has extended as far north as Bonners Ferry, Idaho; east down the Clark Fork River to Superior, Montana; and as far south as Elk River, Idaho. Tree mortality has not resulted yet from continued heavy defoliation, but radial growth has diminished to about 40 to 50 percent of normal in some areas. Progeny of parasites liberated in 1960 were found in 1963 and their population is increasing. Three organic phosphate insecticides were tested this spring by applying them from a helicopter. They all gave excellent control under test conditions.



Left: Larch casebearer larvae overwinter in these cigar-shaped cocoons made out of mined needles. The cocoons are fastened near the bases of spurs on the twigs.



Larch casebearer damage to young larch stand.

LARCH BUDMOTH (Zeiraphera griseana (Hubner)). From 1955 to 1957 this moth caused noticeable defoliation in many northern larch stands. It was next detected in one stand east of Libby, Montana during 1961. This year it severely defoliated sections of larch in Beaver and Little Beaver Creek drainages in the Lolo National Forest, Montana and probably is scattered throughout many thousands of acres to the south.

LARCH SAWFLY (Pristiphora erichsonii (Hartig)). For the last 3 years infestations have been increasing in northern Idaho and to some extent in Montana. The St. Joe National Forest, Idaho contained many infested stands of western larch ranging in size from 100 to 13,000 acres. The most heavily infested area was between Clarkia and Elk River. About 12,000 acres of larch were defoliated in the Clearwater National Forest, Idaho. In Montana, 3,000 acres were detected south of St. Regis in Cedar Creek. Control measures have never been used against this pest in the Northern Region.



Larch sawfly larvae feeding on larch needles.

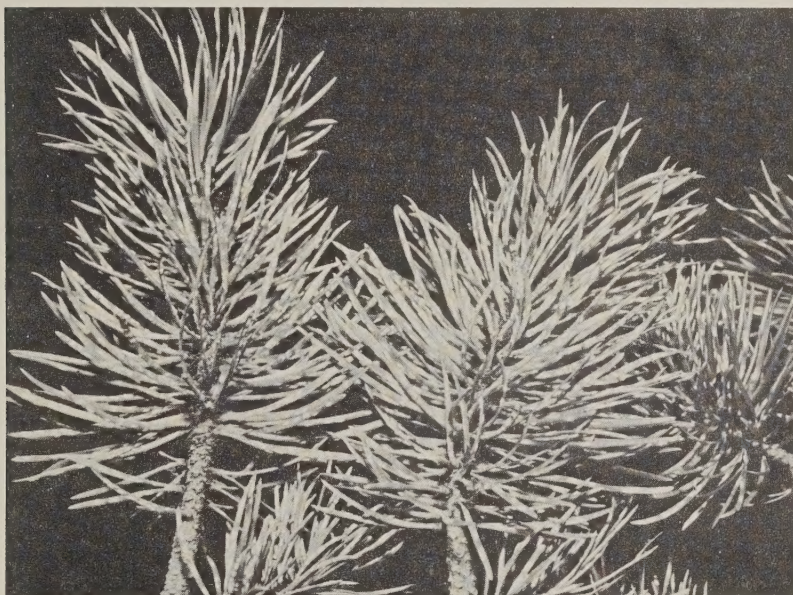
PINE NEEDLE-SHEATH MINER (Zelleria haimbachi Busck.). Damage has been increasing in most lodgepole and ponderosa pine stands from central Montana into northern Idaho since 1960. About 4,000 acres of lodgepole pine in Truman Gulch, Gallatin National Forest, Montana were defoliated again. A severe epidemic developed in 1963 in lodgepole pine stands north of Whitefish, north and east of Columbia Falls, all around West Glacier, the north part of the South Fork Flathead River, and through the southern portion of the Swan River Valley in Montana. About 168,000 acres are involved. Damage to ponderosa pine trees was noticeable near Grangeville, Idaho.



Tips of lodgepole pine tree damaged by
pine needle-sheath miners.

DOUGLAS-FIR NEEDLE MIDGES (Contarinia pseudotsugae and C. constricta Cond.). Almost all Douglas-fir stands in Montana and northern Idaho have been infested with these two midges since 1957. Heavy damage to current needles was observed in drainages on the west side of the Salmon River from Riggins to Grangeville, and along the South, Middle, and North Forks of the Clearwater River in Idaho. Harvesting of Christmas trees has been limited by this pest on the Kootenai, Lolo, and Flathead National Forests, Montana.

PINE NEEDLE SCALE (Phenacaspis pinifoliae (Fitch)). It was still active during 1963 in about 1,200 acres of lodgepole pine in Glacier National Park, Montana. Tree killing was noticed in 1962. Very heavy populations were present on ponderosa pines south of Missoula, Montana. Homeowners are considering control measures. Occasional pine trees alongside dusty roads contained moderate populations over most of the Region.



Left: Heavy population of pine needle scales on lodgepole pine needles.

PINE BUTTERFLY (Neophasia menapia Feld.). Adults were observed flying around the tops of western white pine and ponderosa pine trees in numerous areas throughout the Northern Region. A heavy population was reported infesting ponderosa pines scattered along the Salmon River, Idaho.

WESTERN PINE TIP MOTH (Rhyacionia frustrana bushnelli (Busck)). Infestations in eastern Montana seem to be cyclic. Damage to ponderosa pine saplings and reproduction was heavy during 1957 and 1959. It was hardly noticeable for the next few years then began to increase in 1962. By 1963, damage was visible from the air on 13,000 acres near Ekalaka, and the Long Pines area, and 52,000 acres south of Ashland on the Custer National Forest, Montana. West of Ashland, on the Northern Cheyenne Indian Reservation, 26,000 acres were heavily damaged.

FALSE HEMLOCK LOOPER (Nepytia canosaria (Wlkr.)). It is uncommon for this moth to cause heavy defoliation in the Northern Region. About 350 acres of Douglas-fir trees were infested in 1963 on the National Bison Range, Moiese, Montana. An abundant moth flight was observed in September.

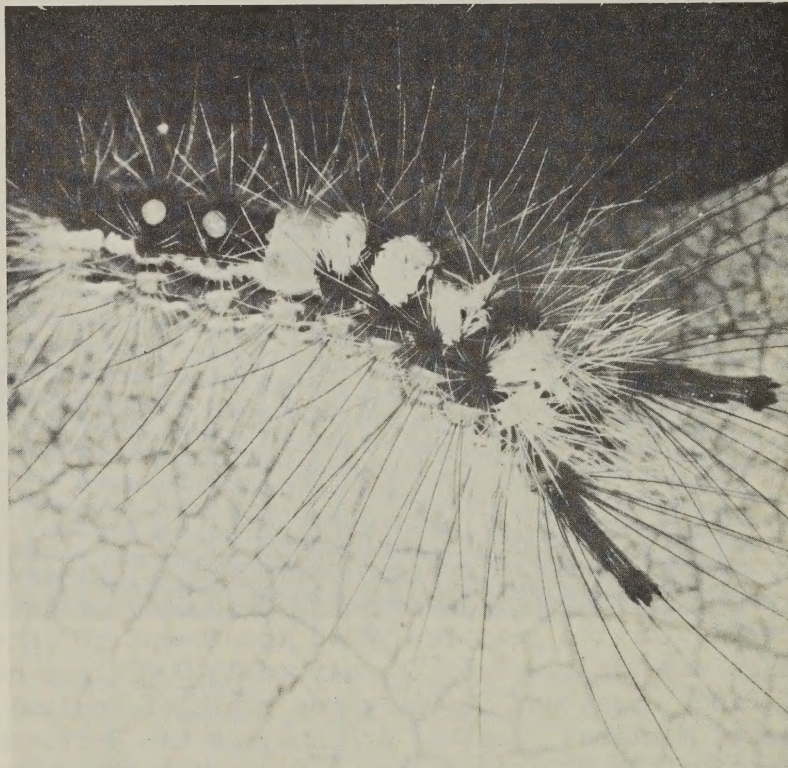
FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.). Aspen, birch, alder, and willow type stands were heavily defoliated in northern Idaho. About 108,000 acres were infested in the Kaniksu National Forest mainly north and south of Sandpoint. Near Hayden Lake and along the Coeur d'Alene River drainage, nearly 8,000 acres were lightly defoliated. Parasitism of pupae was very high and it is expected that the epidemic will decrease next year.

LESS DESTRUCTIVE INSECTS

BLACK SPRUCE BORER (Asemum atrum Esch.). Numerous adults emerged from spruce lumber in a railroad car that was shipped from Superior, Montana to Iowa.

SPRUCE NEEDLE MINER (Taniva albolineana (Kearf.)). A few ornamental Engelmann spruce trees were lightly defoliated in Grangeville, Idaho. It was reported several other times in the Region on single spruce trees.

RUSTY TUSsock MOTH (Notolophus antiqua (L.)). Cocoons were found on western larch trees on the Sylvanite and Warland Ranger Districts, Kootenai National Forest, Montana. Damage was slight. Numerous egg masses were observed on the foliage of many species of brush-type plants northeast of Missoula, Montana.



Rusty tussock moth larva feeding on leaf.

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